CLIMATE VARIABILITY OVER SUBTROPICAL SOUTH AMERICA AND THE SOUTH AMERICAN MONSOON: A REVIEW

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ABSTRACT

This paper reviews the relation of the South American Monsoon System (SAMS) with the climate of South America (SA) south of 20°S based on work of the coauthors and other contributions. Two dominant patterns of the midsummer low-level circulation are linked to the seesaw phases of the South Atlantic convergence zone (SACZ), the low-level jet and precipitation field. These circulation patterns and the associated precipitation are consistent with water sources indicators derived from the isotopic content of the meteoric water. Each of these circulation and precipitation patterns are associated with SST anomalies in the subtropical western South Atlantic. The influence of the SAMS on the discharges of the Uruguay and Paraná rivers is examined. The greatest discharges in the Uruguay River are preceded by strong humid, warm air advection. The highest discharge peaks in the Paraná River begin in the middle Paraná basin and are associated with remote patterns of low-frequency variability such as El Niño.

Key words: monsoon, precipitation, river discharge, sea surface temperature.

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